

Appl. No. 10/803,244

Reply to Examiner's Action dated 03/28/2006

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) An apparatus, comprising[[],];

a substrate having a planar surface

first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;

an electrode insulating layer located on said top surface;

a self-assembled layer located on said lateral surface; and

wherein said second electrode is in contact with both said self-assembled layer and said electrode insulating layer and

wherein said first and second electrodes are in contact with opposite ~~surfaces~~ sides of said electrode insulating layer.

Claims 2-3 (Canceled)

4. (Currently Amended) ~~The apparatus of Claim 3,~~ An apparatus, comprising:

a substrate having a planar surface

first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;

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an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and
wherein said second electrode is in contact with both said self-assembled layer and said
electrode insulating layer; said self-assembled layer comprises a stack of at least two self-assembled
layers, said stack comprising an end group of a first organic molecule in a first self-assembled layer
chemically coupled to an end group of a second organic molecule in a second self-assembled layer;
and wherein said coupling between said end groups of said first and second organic molecules
includes a copper bridge.

5. (Original) The apparatus of Claim 1, wherein said self-assembled layer comprises non-conductive organic molecules.

6. (Currently Amended) ~~The apparatus of Claim 1;~~ An apparatus, comprising:
a substrate having a planar surface
first and second electrodes located on said planar surface, said first electrode having a top
surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;
an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and
wherein said second electrode is in contact with both said self-assembled layer and said
electrode insulating layer and wherein said self-assembled layer comprises semiconductive organic
molecules.

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7. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:
a substrate having a planar surface
first and second electrodes located on said planar surface, said first electrode having a top
surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;
an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and
wherein said second electrode is in contact with both said self-assembled layer and said
electrode insulating layer and wherein said self-assembled layer is covalently bonded to said lateral
surface.

8. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:
a substrate having a planar surface
first and second electrodes located on said planar surface, said first electrode having a top
surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;
an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and
wherein said second electrode is in contact with both said self-assembled layer and said
electrode insulating layer and wherein said self-assembled layer comprises a channel and said
apparatus comprises an organic field effect transistor, wherein said channel has a charge mobility of
at least about $1 \times 10^{-3} \text{ cm}^2 \text{ V}^{-1} \text{ s}^{-1}$.

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9. (Original) The apparatus of Claim 1, wherein a footprint of said electrode insulating layer is substantially aligned with said top surface.

Claims 10-20 (Canceled)

21. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:
a substrate having a planar surface
first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;
an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and
wherein said second electrode is in contact with both said self-assembled layer and said electrode insulating layer; said first and second electrodes are in contact with opposite surfaces of said electrode insulating layer; and wherein said second electrode overhangs said first electrode.

22. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:
a substrate having a planar surface
first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;
an electrode insulating layer located on said top surface;
a self-assembled layer located on said lateral surface; and

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wherein said second electrode is in contact with both said self-assembled layer and said electrode insulating layer; said first and second electrodes are in contact with opposite surfaces of said electrode insulating layer; and wherein a thickness of said electrode insulating layer is greater than a separation distance between said first electrode and said second electrode.

23. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:

a substrate having a planar surface

first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;

an electrode insulating layer located on said top surface;

a self-assembled layer located on said lateral surface; and

wherein said second electrode is in contact with both said self-assembled layer and said electrode insulating layer; said first and second electrodes are in contact with opposite surfaces of said electrode insulating layer; and wherein a thickness of said electrode insulating layer is less than about 500 nanometers.

24. (Currently Amended) ~~The apparatus of Claim 1,~~ An apparatus, comprising:

a substrate having a planar surface

first and second electrodes located on said planar surface, said first electrode having a top surface and a lateral surface, said lateral surface having an edge near or in contact with said substrate;

an electrode insulating layer located on said top surface;

a self-assembled layer located on said lateral surface; and

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wherein said second electrode is in contact with both said self-assembled layer and said electrode insulating layer; said first and second electrodes are in contact with opposite surfaces of said electrode insulating layer; and wherein said first electrode and said second electrode are separated by a distance of less than about 5 nanometers.